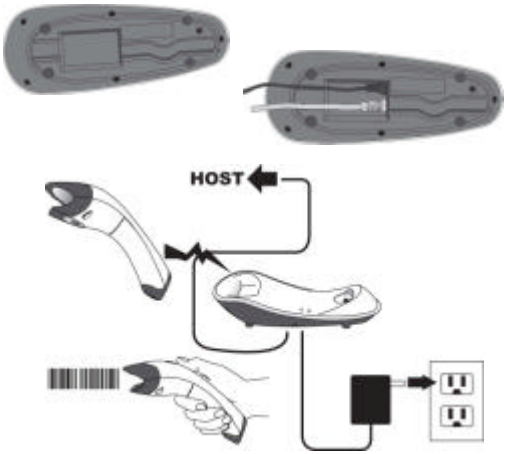
Installation

The MS350 Wireless Imager is easy to install and use. Please see the following figure showing the steps to perform the installation.

* **Note**: Turn off the host computer before installation.

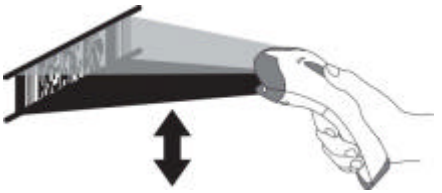


1. Connect the interface (I/F) cable to the cradle.
2. Connect the power cord to the cradle.
3. Route the I/F cable and power cord through the notch.
4. Connect the I/F cable to the host computer communication port.
5. Connect the AC adapter to the wall outlet.
6. Place the imager in the cradle and verify the charge LED is flashing. Charge the battery for at least 8 hours before the first use.
7. To verify operation, please link the imager with cradle first (Refer to “Wireless Connection” in page 5). Point the imager at the barcode and pull the trigger. The imager should emit a beep indicating that the barcode has been scanned and transmitted to the cradle successfully.

How To Scan

1. The imager must be pointed at slight angle to the barcode so that the light reflected off the barcode can be seen by the imager. Do not hold the imager perpendicular to the barcode.

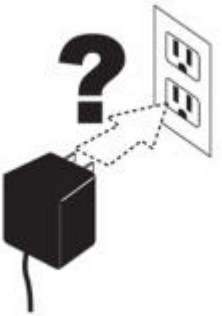
2. The scan line must cross the entire barcode. The imager can not read the barcode data without seeing the entire barcode.



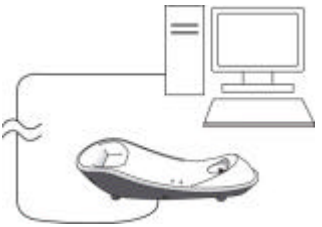
Troubleshooting

If the imager can not operate properly, the following checks should be performed:

1. The cradle uses an external power supply and the external power supply has failed, the imager will not operate. Change the power supply with a known good power supply and reset the imager.



2. Verify the interface cable is securely connected to the host computer. Consult your technical support personnel or refer to your host system manual to verify the proper connection for the imager.



3. Verify the interface cable is securely connected to the cradle.

4. Check that the barcodes are of sufficient quality to be recognized by the imager. Wrinkled, smudged, or torn labels will cause the imager to not read at all. Scan a known good label to check the imager's read operation.

5. Ensure that the cradle's interface type is compatible with the host computer by consulting your host system manual.

Wireless Connection

Linking the imager with the cradle

Follow these instructions to link the two devices:

1. Connect power to the cradle. The radio LED (marked with a light symbol) will blink amber and the cradle will beep.

2. To ensure the cradle is unlinked from any other imager, check if the cradle send inquiry beep or not (see Inquiry Beep Control in page 18).

3. Read the link label on the bottom of the cradle with the imager. The imager will sound a good read beep and the LED will flash amber.

4. Re-place the imager in the cradle to continue the charge.

Once an imager is linked to a cradle, they will remain linked until specific action is taken to unlink them (see Unlinking). They will remain linked if the cradle is unplugged, if the battery is removed from the imager or if the entire charge is used up, and if the imager is taken out of range of the cradle. Under normal operation, scanning of the link label will only be required once in the life of the product.

Unlinking

There are three ways to unlink an imager from a cradle:

Force imager to disconnect and sleep

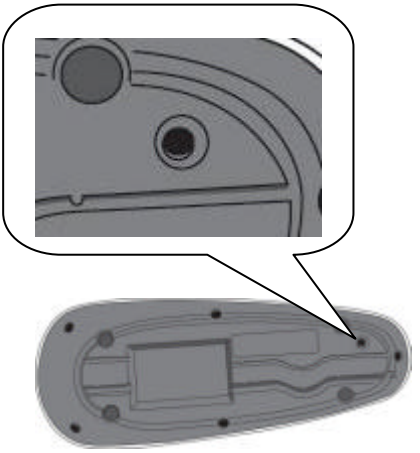
1. **Scan the "Force imager to disconnect and sleep" barcode** – Reading the unlink barcode above while the imager is in range of the cradle will break the link between the two devices and allow another imager to link to the cradle. It will also have the imager in **Deep Sleep Mode**. If the barcode is read when the imager is out of range of its linked cradle, the imager will unlink, but the cradle will remain linked to the imager and will not allow another imager to be linked to it. In this case, you may perform the item 2 below to link another imager.

2. **Scan the Link Label and put on the original cradle** – If the cradle is linked with an imager and the original pair was stopped by out of range of the cradle or out of battery of the imager, scan the link label of the cradle with a new imager and then put on the cradle, the cradle will drop the original pair and establish a new link with the new imager.

3. **Scan the Link Label on an alternate cradle** – Scanning the link label on a cradle will drop the link between the original pair and establish a link between the imager and new cradle. If the new link is performed within range of the old cradle, it is free to establish a link to the next imager that reads its link label. If it is done outside of the range of the old cradle, it retains its old link and will not allow a new imager to link to it until a new imager scan the link label and put on the cradle.

4. **Push the "Reset" button on the bottom of cradle** – If the cradle is linked with an imager and in range, pushing the "Reset" button (for about 2 seconds) on the bottom of cradle will drop the link between the devices. If the button is pushed while the imager is out of range, the cradle will unlink and make itself available to other imagers. The scanner will not drop its link with the cradle automatically, but can be linked to any other cradle by reading its link label.

* **Note**: If just push the button with a short time (less than one second), a "Paging" feature will be performed to page the imager which was linked with the cradle.



Battery Charging

The imager contains a 1000mAh Lithium-Ion rechargeable battery. A full charged battery will provide up to 15,000 scans over a 12 hours period. Actual charge life on the imager will depend on the configuration of how the imager is configured via the programmable feature in this manual; in particular, **Deep Sleep Mode** settings can impact battery life.

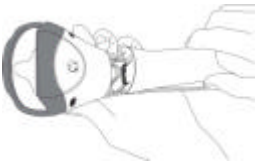
When the imager is placed in the cradle, the battery will automatically charge. While charging is taking place, the charging LED (marked with a battery symbol) will blink green. When the battery is fully charged, the charging LED will stay on a solid green.

If there is an error in charging either with a failure in the charging circuit or with a failure of the battery, the charging LED will flash red. When this happens, the battery needs to be replaced.

How to Change the Battery

In case the contained battery inside the imager needs to be replaced, please follow the procedures below:

1. Loosen the screw at the bottom of the imager.

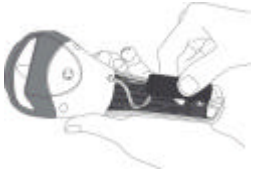


2. Take off the battery cover out of the imager.

3. Disconnect the battery cable connector from the main board.

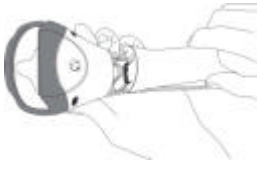
4. Remove the used battery from the battery container.

5. Use a new battery pack and replace the used one.



6. Place the new battery into the battery container.

7. Connect the battery cable connector to the main board.



8. Put the battery cover back to the imager handle.

9. Fasten the screw to the imager.

Note: DO NOT touch the PCBA inside the imager when replacing the battery. Improper operation may damage the imager.

Wireless Features

The MS350 Wireless model includes an imager and a cradle. When the imager and cradle are linked together, the imager will read and decode barcodes and transmit them via a Wireless radio to the cradle. The cradle will then transmit the barcode data to the host computer over the host cable. The host interfaces available from the cradle are RS-232, Keyboard wedge, and USB as a normal corded imager.

Auto Update

When this feature is enabled, an imager and its linked cradle can automatically ensure they stay in sync with regard to firmware and/or configuration. This is accomplished by the linked imager and cradle comparing firmware version number and configuration file check sum. If either is different, the cradle will automatically update the imager with its firmware/configuration.

If the units are linked, any changes made to the cradle's configuration through the scan utility software will automatically be sent to the imager at the completion of the programming session. By the same token, any changes made to the linked imager's configuration will be transmitted to the cradle at the end of the programming session.

The following options are available for Auto Update:

✍ **Enable configuration and firmware auto update** – Allows both configuration and firmware updating (**Default**).

✍ **Enable configuration auto update only** – Allows only configuration updating.

✍ **Enable firmware auto update only** – Allows only firmware updating.

✍ **Disable auto update** – No automatic updates will be performed.

Deep Sleep Mode

The WIRELESS imager can be placed into **Deep Sleep Mode** after this programmed duration (since the units' last scanning activity). Press its trigger to wake the imager form this mode.

✍ **Disable Deep Sleep Mode** (**Default**)

✍ **Duration 10 minute**s - Force imager into deep sleep mode if there is no barcode read in 10 minutes.

✍ **Duration 30 minute**s - Force imager into deep sleep mode if there is no barcode read in 30 minutes.

✍ **Duration 60 minutes** - Force imager into deep sleep mode if there is no barcode read in 60 minutes.

✍ **Duration 90 minutes** - Force imager into deep sleep mode if there is no barcode read in 90 minutes.

Handcuff Mode (Leash Alarm)

When enabled, the Leash Alarm will force the imager to sound an alarm for a preprogrammed length of time to notify if an imager is leaving the immediate vicinity of the cradle. This is especially useful in instances where the imager might inadvertently have been placed in a bag or cart.

✍ **Disable Handcuff Mode (Default)**

✍ **Alarm for 10 seconds when out of range**

✍ **Alarm for 30 seconds when out of range**

✍ **Alarm for 60 seconds when out of range**

Wireless Connectivity

The MS350 can be linked to any Bluetooth (BT) enabled device which can accept such a connection with other devices. To implement this feature, user should set the imager to "Cradle/Dongle connection auto detection" first. And then set the PIN code to 0000 assigned to the target Bluetooth device. In this case, the PIN code of the Bluetooth enabled device should be set to 0000 to be identical with your imager.

✍ **Cradle connection only** – The imager can be used only with cradle (**Default**).

✍ **Cradle/Dongle connection auto detection** – The imager can be linked to either a cradle or other Bluetooth enabled devices.

✍ **Set PIN code to 0000**

Note: The imager only support **"Serial Port Profile"** under "Dongle connection"

Wireless Connectivity (continued)

User is also allowed to set any four - to six-character PIN code assigned to the target Bluetooth device using the setting procedures below:

STATE	CODE
Cradle/Dongle connection auto detection	*$%-1AB01%%*
Program	*$%+PRO*
Begin PIN setting	*#PIN*
PIN no. (Set 4~6 character)	*/0* */1* */2* */3* */4* */5* */6* */7* */8* */9*
End PIN setting	*%$$*

Inquiry Beep Control

When the cradle is not linked to an imager, the Radio LED will blink amber and the cradle will beep. This beep can be disabled or reconfigured to sound for different durations by using the following programming barcodes.

✍ **Disable inquiry beep**

✍ **Inquiry beep continuously (Default)**

✍ **Inquiry beep every 10 seconds**

✍ **Inquiry beep every 20 seconds**

✍ **Inquiry beep every 30 seconds**

✍ **Inquiry beep every 40 seconds**

✍ **Inquiry beep every 50 seconds**

✍ **Inquiry beep every 60 seconds**

✍ **Inquiry beep every 70 seconds**

Cradle Beep Loudness Control

The beep loudness of cradle can be defined with the following levels.

✍ **Cradle beep off**

$%-5AK00%%

✍ **Level 1**

$%-5AK01%%

✍ **Level 2**

$%-5AK02%%

✍ **Level 3 (Default)**

$%-5AK03%%

✍ **Level 4**

$%-5AK04%%

✍ **Level 5**

$%-5AK05%%

✍ **Level 6**

✍ **Level 7**

Additional Features

Here list three additional features of MS350 wireless imager for the convenience of use to users.

✍ **Download firmware from the cradle**

✍ **Download configuration parameters from the cradle**

✍ **Force cradle to reset the configuration** – This feature will also force imager to reset the configuration to factory default.

Note: To meet the regulation of air transportation, the wireless imager should disconnect with the cradle during shipment. All MS350 wireless imagers are suggested to scan the following command before packaging into boxes and ship to customers.

Force imager to disconnect and sleep

Default setting

For each barcode shown as below:

Code Type	Read Enable	Checksum Verification Enable	Checksum Transmission Enable	Code ID
UPC-A	V	V	V	A
UPC-E	V	V	V	E
EAN-13	V	V	V	F
EAN-8	V	V	V	FF
Code-39	V			*
Interleaved 2 of 5	V			i
Industrial 2 of 5		-	-	i
Matrix 2 of 5				B
Codabar				%
Code-128	V	V		#
Code-93		V two digits		&
Code-11		V One digit		O
MSI/Plessey		V		@
UK/Plessey		V		@
Telepen				S
Standard 2 of 5		V	V	i
China Post				t
Italian Pharmacode.				p
Code-16K		-	-	
PDF417	V	-	-	
EAN UCC Composite		-	-	RC
RSS-14				R4
RSS-Limited				RL
RSS-Expanded				RX
Micro-PDF		-	-	U

Specification

Unitech MS350	
Specification	Model MS350
Operational	
Light Source	630 nm Visible Red LED
Optical System	2048 pixel CCD (Charge-coupled device)
Depth of Scan Field	0~270mm (CODE 39, PSC=90%, 20mil) 0~180mm for 13mil 0~60mm for 5mil 5mm~50mm for 4mil
Scan Speed	300 scans/sec
Resolution	0.1mm (4mil) Code39, PCS=90%
Print Contrast	30% or more
Scanning Angle	Front: 60° Rear: 60° Yaw: 70°
Decode Capability	Auto-discriminates all standard barcodes and some 2D symbologies including PDF-417 and RSS code; Other symbologies can be ordered optionally
Beeper Operation	7 tones or no beep
Indicator on imager	Green & Red led
Mechanical	
Length	187 mm
Width-handle	35 mm
Width-head	75 mm

Depth-handle	33 mm
Depth-head	44 mm
Weight	Less than 200g (with a battery)
Case material	ABS (over molded at contact points)
Cushion material	Double injection
Cradle interface	RS232, Keyboard wedge, USB
Electrical	
Input Voltage (Cradle)	5 VDC ± 10% VDC
Power - Operating (Cradle)	5 VDC
Power – Standby (Cradle)	5 VDC
Current – Operating (Cradle)	120 mA
Current – Standby (Cradle)	120 mA
Charge Current (Cradle)	550 mA
Input Voltage (Imager)	3.4V ~ 4.2V
Power - Operating (Imager)	1073 mW
Power – Standby (Imager)	118 mW
Current – Operating (Imager)	290 mA
Current – Standby (Imager)	32 mA

Current – Sleep (Imager)	2 mA
Light Level	Up to 45000 Lux
Shock (Imager)	1.5m drop onto concrete
Shock (Cradle)	90cm drop onto concrete
Contaminants	Seals to resist airborne particulate contaminants (IP42)
Ventilation	None required
Programming	
Programming method	Manual (Reading special barcode)
Program upgrade	Enabled by built-in flash memory
Programmable characteristics	Code type selection, check digit selection Decoding option Decoding option Transmitted character delay, Header selection, trailer selection, message suffix, good read beep tone and volume, scanner trigger selection Keyboard emulation type (intermessage delay, keyboard type and keyboard language) Serial interface type (ACK/NAK, Xon/Xoff, RTS/CTS, good read LED control, start/stop bits)

Indications of MS350

Imager:

	Status	Green LED	Red LED	Orange LED	Beeper
LED	Link established	Blink once			A special beep
	Loss link (handcuff mode enable			Blink	Sound like grasshopper
	Loss link (handcuff mode disable)			Blink twice	A special beep
	Hardware fail		Flash		
	Program download	Flash			
	Program checksum fail		Flash		
	Data transmitting	ON			High freq. Beep for 300msec
	Data trans. Fail		ON for 300msec		Error beep
	Data trans. OK	ON for 200msec			Good beep
	Low battery (<3.2V) (Trigger is pressed)			Flash	

Cradle:

	Status	Green LED	Red LED	Orange LED	Beeper
RF status LED	Inquiry			Blink	Beeps once a second
	Connecting			Blink	
	Link established	ON			
	Hardware fail		Flash		
	Data receiving from the scanner			ON for 0.5sec	
	Barcode data proof or transmitted				Good beep
	Data send to the host Fail				Error beep
	Program download	Flash			
	Program checksum Fail		Flash		
Battery LED	Idle				
	Charging	Blink			
	Battery full	ON			
	Battery/charger Fail		Blink		

Programming the MS350

To program the MS350, you must scan a series of programming barcode in the correct order. Fold out the back cover of this manual. You will see a table of alphanumeric barcodes, which are used to program the various options presented.

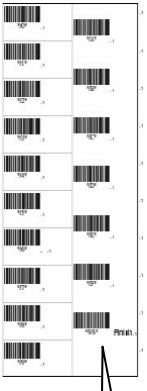
To program each option, you must:

1. Scan the **Program** barcode on the parameter setting part.
2. Enter the option mode by scanning the **Option Bar Code** (also on the Parameter setting part).
3. To the right of the option barcode, the necessary alphanumeric inputs are listed. Scan these alphanumeric entries from the **back fold out** page. To confirm above steps, you must scan the **Finish** barcode on the back fold out page.
4. Once you have finished programming. Scan the **Exit** barcode, listed on the lower right hand corner of each parameter setting part.

Program

Program Barcode

Option Bar Code	Option	Alphanumeric Entry
Interface selection	Keyboard Wedge	00*
	RS-232	01
	Wand emulation	02
	USB	03
	Keyboard/RS-232	04
	Auto detection	
	Reserved	05



Exit

Option Barcode

Exit Barcode

Back Fold Out

Finish barcode

Interface Selection

This cradle comes in one model and supports interfaces such as keyboard wedge, RS232 serial wedge, and USB interface. In most of the cases, simply selecting an appropriate cable with a device code will work for a specific interface.

Interface selection: You can change factory interface default for other type interface. By plugging different cables, setting right interface, then the cradle will be changed to another interface. However, you must make sure which cable you need.

Keyboard/RS232/UBS Auto detection: By setting this function, it will automatically select the Keyboard wedge or RS-232 or UBS interface for user.

Program

Option Bar Code	*Option*	*Alphanumeric Entry*
Interface selection	Keyboard Wedge	00
	RS-232	01
	USB	03
	Keyboard /RS232/USB Auto detection	04*

Exit

Note:* Default

Keyboard wedge

As a keyboard interface, the cradle supports most of the popular PCs and IBM terminals. The installation of the wedge is a fairly simple process without any changes of software or hardware.

Keyboard Type: Select keyboard type connector of your host computer. Cradle must be selected to the appropriate host interface cable converter.

Program

Option Bar Code	*Option*	*Alphanumeric Entry*
	IBM AT, PS/2	00*
	Reserved	
Keyboard type	Reserved	01
	Reserved	02
	Reserved	03
	Reserved	04
	Reserved	05
		06

Exit

Keyboard wedge

Keyboard Layout: The selecting of keyboard layout supports many country languages other than USA keyboard layout. First you need to confirm country language that you desire. In DOS, using command "keyb" to select the desirable keyboard layout or in WINDOWS entry "Control" then pops "Keyboard" to select country at "language" item. For details, please refer to your DOS or WINDOWS user's manual.

Keyboard Speed: By selecting, you can change output speed of data transmission to match with host computer. Generally, set 00 or 01 in working high speed. If some output characters of barcode have been lost, you may need to set 05 or 06 to match your host keyboard speed.

Function Key: Set Enable, imager can output code as pressing function-key in your application program while the barcode datas contain ASCII value between 01_{16} to $1F_{16}$. Refer to ASCII table.

Numeric Key: The Keypad has to be selected if your application program is only keypad numeric code acceptable. So, cradle will output code as press numeric keypad when it read numeric digit. (The keypad is in the right side of keyboard, and Num Lock control key is also on.) If Alt+Keypad is selected, the data characters will be transmitted as "Alt" + numbers. For example, when sending character "A", the actual sending will be "Alt"+65. It is also useful when using non-English OS and keyboard layout.

Program

Option Bar Code	*Option*	*Alphanumeric*

		Entry
2AB Keyboard layout	USA Belgium Danish France Germany Italian Portuguese Spanish Swedish Switzerland UK Latin American Japanese	00* 01 02 03 04 05 06 07 08 09 10 11 12
2AC Keyboard speed	0-8 0 : high clock rate 8 : low clock rate	00-08 03 *
2AD Function key	Disable Enable	00 01*
2AE Alpha/Numeric key	Alphabetic key Numeric keypad (Num lock state	00* 01

	only) Alt+Keypad	02

Keyboard wedge

Exit

Caps Lock: By selecting Caps lock"ON" or Caps lock"OFF", imager can get Caps Lock status.

Power-on simulation: All of the PCs check the keyboard status during power-on selftest. It is recommended to Enable function if you are working without keyboard installation. It simulates keyboard timing and pass keyboard present status to the PC during power-on.

Inter-character delay: This delay is inserted after each data characters transmitted. If the transmission speed is too high, the system may not be able to receive all characters. Adjust it and try out suited delay to make system work properly.

Block transmission delay: It is a delay timer between barcode data output. The feature is used to transfer continually with shorter barcode data or multi-field scanning.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Caps lock	Caps lock"ON" Caps lock"OFF"	00 01*
Power-on simulation	Disable Enable	00* 01
Inter-character delay	00-99 (msec)	00-99 02*
Block transmission delay	00-99 (10 msec)	00-99 10*

Exit

RS-232

CTS: Clear To Send (Hardware Signal)
RTS: Request To Send (Hardware Signal)
Xon: Transmit On (ASCII Code 11_{16})
Xoff: Transmit Off (ASCII Code13_{16})

Flow control:
None-The communication only uses TxD and RxD signals without regard for any hardware or software handshaking protocol.
RTS/CTS-If the cradle wants to send the barcode data to host computer, it will issue the RTS signal first, wait for the CTS signal from the host computer, and then perform the normal data communication. If there is no replied CTS signal from the host computer after the timeout (Response Delay) duration, the imager will issue a 5 warning beeps.
Xon/Xoff- When the host computer is unable to accept data, it sends a Xoff code to inform the cradle to suspend data transmission, and Xon to continue.
ACK/NAK- When the ACK/NAK protocol is used, the cradle waits for an A CK (acknowledge) or (not acknowledge) from the host computer after data transmission, and will resend in response to a NAK.

Inter-character delay: It is delay time between data character's data output. It is also same as Inter-char. delay of keyboard wedge.

Block transmission delay: It is a delay time between barcode data output. It is also same as Block transmission delay of keyboard wedge.

Response delay: This delay is used for serial communication of the cradle to waiting for handshaking acknowledgment from the host computer.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Flow control	None RTS/CTS Xon/Xoff ACK/NAK RTS/CTS bracket mode	00* 01 02 03 04
Inter-character delay	00-99 (msec)	00-99 00*
Block transmission delay	00-99 (10 msec)	00-99 00*
Response delay	00-99 (100 msec)	00-99 20*

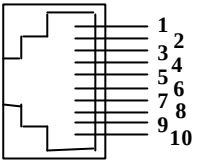
Exit

Program

Option Bar Code	*Option*	*Alphanumeric Entry*
Baud rate	300 BPS	00
	600 BPS	01
	1200 BPS	02
	2400 BPS	03
	4800 BPS	04
	9600 BPS	05*
	19200 BPS	06
	38400 BPS	07
Parity	None	00*
	Odd	01
	Even	02
Data bit	8 bits	00*
	7 bits	01
Stop bit	One bit	00*
	Two bits	01

Exit

Pin Assignments



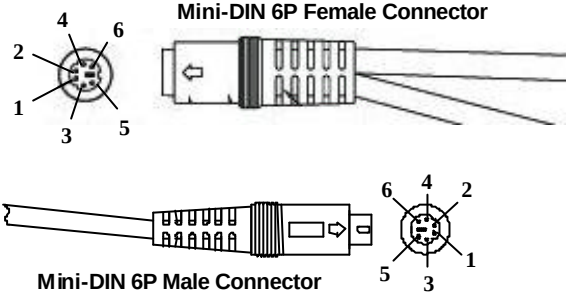
10-pin

AS Series 10-pin RJ-45 Connector

Pin	RS-232	Keyboard
1	I/F	I/F
2	NA	NC
3	TXD	NC
4	NC	CLK / PC
5	GND	DATA / PC
6	CTS	DATA / KB
7	RXD	NC
8	RTS	CLK / KB
9	GND	GND
10	NC	GND

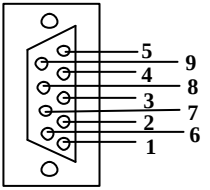
Keyboard Wedge PS/2 Connector (To Host Side):

Pin	Mini-DIN 6P Male	Mini-DIN 6P Female
1	DATA / PC	DATA / KB
2	NC	NC
3	GND	GND
4	VCC (+5V)	NA
5	CLK / PC	CLK / KB
6	NC	NC



RS-232 DB-9F Connector (To Host Side):

Pin	Definition
1	NC
2	TXD
3	RXD
4	NC
5	GND
6	NC
7	CTS
8	RTS
9	NC



Scan

Scanning mode:
Good-read off- The trigger button must be pressed to activate scanning. The light source of imager stops scanning when there is a successful reading or no code is decoded after the Stand-by duration elapsed.
Momentary- The trigger button acts as a switch. Press button to activate scanning and release button to stop scanning.
Alternate - The trigger button acts as a toggle switch. Press button to activate or stop scanning.
Timeout off- The trigger button must be pressed to activate scanning, and imager stops scanning when no code is decoded after the Stand-by duration elapsed.
Continue - Imager always keeps reading, and it does not matter when trigger button is pressed or duration is elapsed.
Test only- For test of scan performance only. It is improper to be utilized to check the accuracy of transmitted data.

Double read timeout: The imager will require a several times successful decoding to confirm the data when enabled. The more confirming times required, the more inhibitive miss-reading code will be shown. The Multi field scan Enable function won't be able to work if set Double confirm.

Double confirm: If the barcode has been scanned twice, then only the first barcode will be accepted.

Supplement Check Counter: It will be more reliable to read the barcode with extension (supplement) like UPCE/A or EAN-8/13, but slow down the decoding speed when this counter is set more.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Scanning mode	Good-read off Momentary Alternate Timeout off Continue Test only	00 01* 02 03 04 05
Stand-by duration	01-99 (second)	00-99 06*
Double read timeout	01-99 (10 msec)	01-99 50*
Double confirm	00-09 (00: no double confirm)	00-09 00*

Exit

Scan

Global min./max. code length: These are to define the min/max readable code length of all symbologies. Code length less than min. code length or more than max. code length will not be read. In popular, you can set the same value for both min. and max. reading length to force the fixed length barcode decoded. The values of setting have no effect on certain symbologies with fixed length. You can specify the settings for individual barcode by the min/max code length setting of each barcode.

Notes 1): Please set the min/max length if you have special demand for individual barcode.

2): Include the Check sum digits if you want to set Global min/max code length.

Inverted image scan: Set Enabled the imager will scan both black/white barcode with white/black background.

Program

Option Bar Code	*Option*	*Alphanumeric Entry*
Global min. code length	00-99	00-99 04*
Global max. code length	00-99	00-99 99*
Inverted image scan	Disable Enable	00* 01

Exit

Indication

Power on alert: After power-on the cradle it will generate an alert signal to indicate a successful self-test.

LED indication: After each successful reading, the LED above the imager will light up to indicate a good barcode reading.

Beeper indication: After each successful reading, the imager will beep buzzer to indicate a good barcode reading, and its Beep loudness, Beep tone freq. and Beep tone duration are adjustable.

Beep loudness/Beep tone freq./Beep tone duration: You can adjust Beep Loudness, Beep tone and Beep duration for a good reading upon favorite usage.

Program

Option Bar Code	*Option*	*Alphanumeric Entry*
Power on alert	Disable Enable	00 01*
LED indication	Disable Enable	00 01*
Beeper indication	Disable Enable	00 01*
Beep loudness	00-07 (00 - off)	00-07 07*
Beep tone freq.	00-99 (100Hz)	00-99 26*
Beep tone duration	00-99 (10 msec)	00-99 08*

Exit

UPCA

Format

Leading Zero	Data Digits (11 Digits)	Check Digit

Read: Enable or disable the read function.

Check-sum transmission: By setting Enable, checks sum will be transmitted.

Truncate leading/ending: The leading or ending digits of barcode data characters can be truncated when these values are set to non-zero. It will beep instead of reading anything when the truncate value is more than the barcode data digits or the value of Truncate Leading is overlapped with that of the Ending. The maximum value of truncate digits is 15.

Code ID setting: Code ID setting is a character used to represent the symbol upon a succeeding reading. A Code ID setting is prefixed to the data begin or end transmitted if the feature is selected. If you want application to transmit Code ID, you must set Code ID transmission to Enable first. Refer to Code ID transmission.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*
Check-sum transmission	Disable Enable	00 01*
Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*
Code ID setting	00-ffH ASCII code	00-ffH < A >*

Exit

UPCA

Insertion group number selection: The imager offers max. two insertion groups for one symbology. By setting one or two digits to indicate which insertion group you want to insert. You may refer to Character insertion. The function is to insert specific characters as a group into transmitted data of selected symbologies. Enable the group insertion by selecting the group number.

Example: Group 2 ? set 02 or 20.
Group 1 and 4 ? set 14 or 41.

Notes 1): Group number set to "0" means that no group insertion required.
2): Details about the Insert Group settings please refer to page 117~120, and page 126 ASCII code table.

Supplement digits: The Supplement digits barcode is the supplemental 2 or 5 characters for WPC code.

Format

Leading Zero	Data Digits (11 Digits)	Check Digit	Supplement Digits 2 or 5 or UCC / EAN 128

Truncation / Expansion: The leading "0" digits of UPCA data characters can be truncated when the function is enabled.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Insert group number selection	00-44	00-44 00*
Supplement digits	None 2 digits 5 digits 2,5 digits UCC/EAN 128 2, UCC/EAN 128 5, UCC/EAN 128 All	00* 01 02 03 04 05 06 07
Truncation/ Expansion	None Truncate leading zero Expand to EAN13	00 01* 02

Exit

UPCE

Read: Format

Leading Zero	Data Digits (6 Digits)	Check Digits

Check-sum transmission: By setting Enable, checks sum will be transmitted.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*
Check-sum transmission	Disable Enable	00 01*
Truncate leading	0-15	00-15 00*

0AG Truncate ending	0-15	00-15 00*
0AH Code ID setting	00-ffH ASCII code	00-ffH < E >*

%SS

Exit

UPCE

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Supplement digits:

Format

Leading Zero	Data Digits (6 Digits)	Check Digit	Supplement Digits 2 or 5 or UCC/EAN 128

Expansion: The expansion function is used only for UPCE and EAN-8 code reading. It extends to 13-digits with "0" digits when the feature is enabled.

Example: Barcode "0123654"

Output: "0012360000057"

UPCE-1: Enable imager to read UPCE with leading digit 1.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Insert group number selection	00-44	00-44 00*

OAJ Supplement digits	None 2 digits 5 digits 2,5 digits UCC/EAN 128 2, UCC/EAN 128 5, UCC/EAN 128 All	00* 01 02 03 04 05 06 07
OAK Truncation/Expansion	None Truncate leading zero Expand to EAN13 Expand to UPCA	00* 01 02 03
OAL Expansion	Disable Enable	00* 01
OAM UPCE-1	Disable Enable	00* 01

%SS

Exit

EAN-13

Read: Format

Data Digits (12 Digits)	Check Digits

Check-sum transmission: By setting Enable, checks sum will be transmitted.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Truncate leading zero: Refer to Truncation / Expansion of UPCA.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*
Check-sum transmission	Disable Enable	00 01*
Truncate leading	0-15	00-15 00*

GAG Truncate ending	0-15	00-15 00*

%$$

Exit

EAN-13

Code ID setting: Refer to page 51 Insertion group number selection of UPCA.

Insertion group number selection: Refer to Insertion group selection of UPCA.

Supplement digits:

Format

Data Digits (12 Digits)	Check Digits	Supplement Digits 2 or 5 or UCC / EAN 128

ISBN/ISSN: The ISBN (International Standard Book Number) and ISSN (International Standard Serial Number) are two kinds of barcode for book and magazines. The ISBN is 10 digits with leading "978" and the ISSN is 8 digits with leading "977" of the "EAN-13" symbology.

Example: Barcode "9789572222720" - Output: "9572222724"
Example: Barcode "9771019248004" - Output: "10192484"

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Code ID setting	00-ffH ASCII code	00-ffH < F >*
Insert group number selection	00-44	00-44 00*

Supplement digits	None 2 digits 5 digits 2,5 digits UCC/EAN 128 2, UCC/EAN 128 5, UCC/EAN 128 All	00* 01 02 03 04 05 06 07
ISBN/ISSN conversion	Disable Enable	00* 01
ISBN ID setting	00-ffH ASCII code	00-ffH < I >*

Exit

EAN-8

Read: Format

Data Digits (7 Digits)	Check Digits

Check-sum transmission: By setting Enable, checks sum will be transmitted.
Truncate leading/ending: Refer to Truncate leading/ending of UPCA.
Code ID setting: Refer to Code ID setting of UPCA.
Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA .

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*
Check-sum transmission	Disable Enable	00 01*
Truncate leading	0-15	00-15 00*

FAG Truncate ending	0-15	00-15 00*
FAH Code ID setting	00-ffH ASCII code	00-ffH, 00-ffH < FF >*
FAI Insert group number selection	00-44	00-44 00*

%SS **Exit**

EAN-8

Supplement digits: Format

Data Digits (7 Digits)	Check Digits	Supplement Digits 2 or 5 or UCC/EAN 128

Truncation / Expansion: Refer to Truncate Leading zero of UPCE.

Expansion: Refer to Expansion of UPCE.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Supplement digits	None 2 digits 5 digits 2,5 digits UCC/EAN 128 2, UCC/EAN 128 5, UCC/EAN 128 All	00* 01 02 03 04 05 06 07
Truncation / Expansion	None Truncate leading zero Expand to EAN13	00* 01

		02
Expansion	Disable Enable	00* 01

Exit

Code 39

Read: Format

Start	Data Digits	Checksum	End
"? "	(Variable)	(Optional)	"? "

Check-sum verification: The checksum of Code-39 is optional and made as the sum module 43 of the numerical value of the data digits.

Check-sum transmission: By setting Enable, checksum will be transmitted.

Max./Min. code length: Each symbology has own Max./Min. Code Length. They can be set to qualify data entry. If their Max./Min. Code Length is zero, the Global Min./Max. Code Length is in effect. The length is defined as to the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the Minimum length setting is no greater than the Maximum length setting, or otherwise all the labels of the symbology will not be readable. In particular, you can see the same value for both Minimum and Maximum reading length to force the fixed length barcode decoded.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*

 Check-sum verification	Disable Enable	00* 01
 Check-sum transmission	Disable Enable	00* 01
 Max. code length	00-64	00-64 00*
 Min. code length	00-64	00-64 00*
 Truncate leading	0-15	00-15 00*
 Truncate ending	0-15	00-15 00*
 Code ID setting	00-ffH ASCII code	00-ffH <* >

Exit

Code 39

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Format: The Full ASCII Code-39 is an enhanced set of Code-39 that is the data with total of 128 characters to represent Full ASCII code. It is combined one of the digits +, %, $ and/ with one of the alpha digits (A to Z).

Append: This function allows several symbols to be concatenates and be treat as one single data entry. The imager will not transmit the embedded appending code (space for Code-39). If Enable and other symbols were read again with the appended code, then codes will be transmitted without Code ID, Preamble and Prefix. When a symbol was decoded without the appended code, the data will be transmitted without Code ID and Prefix, but the Postamble Suffix codes are appended. This function is used when the first number of code 39 is a space. Example: ?123456.

Start/end transmission: The start and end characters of Code-39 are"? ". You can transmit all data digits including two "? ".

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Insert group number selection	00-44	00-44 00*

 BAJ Format	Standard Full ASCII	00* 01
 BAK Append	Disable Enable	00* 01
 BAM Start/end transmission	Disable Enable	00* 01

%SS

Exit

Interleaved 2 of 5

Read: Format

Data Digits (Variable)	Checksum (Optional)

Check-sum verification: The checksum is made as the sum module 10 of the numerical values of all data digits.
Check-sum transmission: By setting Enable, checksum will be transmitted.
Max./Min. code length: Refer to Max./Min. code length of Code-39.
Truncate leading/ending: Refer to Truncate leading/ending of UPCA.
Code ID setting: Refer to Code ID setting of UPCA.
Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00 01*
Check-sum verification	Disable Enable	00* 01

!AC Check-sum transmission	Disable Enable	00* 01
!AD Max. code leading	00-64	00-64 00*
!AE Min. code leading	00-64	00-64 00*
!AF Truncate leading	0-15	00-15 00*
!AG Truncate ending	0-15	00-15 00*
!AH Code ID setting	00-ffH ASCII code	00-ffH < i >*
!AI Insert group number selection	00-44	00-44 00*

%SS

Exit

Industrial 2 of 5

Read: Format

Data Digits (Variable)	Checksum (Optional)

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	***Option***	***Alphanumeric Entry***
Read	Disable Enable	00* 01
Max. code length	00-64	00-64 00*
Min. code length	00-64	00-64 00*

 Truncate leading	0-15	00-15 00*
 Truncate ending	0-15	00-15 00*
 Code ID setting	00-ffH ASCII code	00-ffH < i >*
 Insert group number selection	00-44	00-44 00*

Exit

Matrix 2 of 5 Eur

Read: Format

Data Digits (Variable)	Checksum (Optional)

Checksum Verification: The checksum is made as the sum module 10 of the numerical values of all data digits.
Checksum Transmission: By setting Enable, checksum will be transmitted.
Max./Min. code length: Refer to Max./Min. code length of Code-39.
Truncate leading/ending: Refer to Truncate leading/ending of UPCA.
Code ID setting: Refer to Code ID setting of UPCA.
Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
PAA Read	Disable Enable	00* 01
PAB Checksum Verification	Disable Enable	00* 01

 PAC Checksum Transmission	Disable Enable	00* 01
 PAD Max. code length	00-64	00-64 00*
 PAE Min. code length	00-64	00-64 00*
 PAF Truncate leading	0-15	00-15 00*
 PAG Truncate ending	0-15	00-15 00*
 PAH Code ID setting	00-ffH ASCII code	00-ffH < B >*
 PAI	00-44	00- 44

Insert group number selection		00*

Exit

Codabar

Read: Format

Start	Data Digits (Variable)	Checksum (Optional)	End

Checksum Verification: The checksum is made as the sum module 16 of the numerical values of all data digits.

Checksum Transmission: By setting Enable, checksum will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01

 EAB Checksum Verification	Disable Enable	00* 01
 EAC Checksum Transmission	Disable Enable	00* 01
 EAD Max. code length	00-64	00-64 00*
 EAE Min. code length	00-64	00-64 00*
 EAF Truncate leading	0-15	00-15 00*
 EAG Truncate ending	0-15	00-15 00*
 EAH Code ID setting	00-ffH ASCII code	00-ffH < % >*

%SS

Exit

Codabar

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.
Start/End type: The Codabar has four pairs of Start/End pattern; you may select one pair to match your application.
Start/End Transmission: Refer to Start/End Transmission of Code 39.

Program

Option Bar Code	Option	Alphanumeric Entry
Insert group selection	00-44	00-44 00*
Start/End type	ABCD/ABCD abcd/abcd ABCD/TN*E Abcd/tn*e	00* 01 02 03

EAK Start/End transmission	Disable Enable	00 01*

%S$ **Exit**

Code-128

Read: Format

Data Digits (Variable)	Checksum (Optional)

Checksum Verification: The checksum is made as the sum module 103 of all data digits.

Checksum Transmission: By setting Enable, checksum will be transmitted.

$%+PRO **Program**

Option Bar Code	Option	Alphanumeric Entry
DAA Read	Disable Enable	00 01*
DAB Checksum Verification	Disable Enable	00 01*

 DAC Checksum Transmission	Disable Enable	00* 01

%SS

Exit

Code-128

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Format: The Code-128 can be translated to UCC/EAN-128 format if it starts with FNC1 character. The first FNC1 will be translated to "]C1",and next to be a field separator code as <GS>($1D_{16}$).

]C1	Data	<GS>	Data	Checksum

Append / FNC4 control: When Append function is enabled, it won't show the data immediately if imager read the barcode includes FNC2 code. It will show all data until it read the barcode, which doesn't have FNC2 code. When FNC4 is enabled, the imager will send the data with FNC4 code. If the FNC4 is ignore, the imager will send the data without FNC4 code.

Program

Option Bar Code	Option	Alphanumeric Entry
Max. code length	00-64	00-64 00*
Min. code length	00-64	00-64 00*

Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*
Code ID setting	00-ffH ASCII code	00-ffH < # >*
Insert group number selection	00-44	00-44 00*
Format	Standard UCC/EAN-128	00* 01
Append / FNC4 control	Disable/Enable Enable/Enable Disable/Ignore Enable/Ignore	00* 01 02 03

Exit

Code-128

ISBT enable: This feature is commonly used in a blood bank for identification.
ISBT concatenation timeout: This feature is to setup the timeout duration of ISBT concatenation.
Field separator code: This feature is only used for UCC/EAN-128 format. This Field separator code means you can reassign second or after a FNC1 for your usage. The default of ASCII code is <GS>($1D_{16}$).
UCC/ EAN 128 ID setting: Refer to Code ID setting of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
DAL ISBT enable	Disable Enable normal	00* 01
DAM Field separator code	00-ffH ASCII code	00-ffH 1DH*
UCC/EAN-128 ID setting	00-ffH ASCII code	00-ffH < # >*

Exit

Code-93

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)

Checksum Verification: The checksum is made as the sum module 47 of the numerical values of all data digits.
Checksum Transmission: By setting Enable, checksum will be transmitted.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Checksum Verification	Disable Enable (two digits)	00 01*
Checksum Transmission	Disable Enable	00* 01

Exit

Code-93

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Max. code length	00-64	00-64 00*
Min. code length	00-64	00-64 00*
Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*

 Code ID setting	00-ffH ASCII code	00-ffH < & >*
 Insert group number selection	00-44	00-44 00*

Exit

Code-11

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)

Checksum Verification: The checksum is presented as the sum module 11 of all data digits.

Checksum Transmission: By setting Enable, checksum1 and checksum2 will be transmitted upon your selected checksum verification method.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Checksum Verification	Disable One digit Two digits	00 01* 02

AAC Checksum Transmission	Disable Enable	00* 01
AAD Max. code length	00-64	00-64 00*
AAE Min. code length	00-64	00-64 00*
AAF Truncate leading	0-15	00-15 00*
AAG Truncate ending	0-15	00-15 00*
AAH Code ID setting	00-ffH ASCII code	00-ffH < O >*
AAI Insert group number selection	00-44	00-44 00*

%SS **Exit**

MSI/plessey

Read: Format

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)

Checksum Verification: The MSI/Plessey has one or two optional checksum digits. The checksum is presented 3 kinds of method Mod10, Mod10/10 and Mod 11/10. The checksum1 and checksum2 will be calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: By setting Enable, checksum1 and checksum2 will be transmitted upon your selected checksum verification method.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Checksum Verification	Disable Mod 10 Mod 10/10 Mod 11/10	00 01* 02

		03
 KAC Checksum Transmission	Disable Enable	00* 01
 KAD Max. code length	00-64	00-64 00*
 KAE Min. code length	00-64	00-64 00*
 KAF Truncate leading	0-15	00-15 00*
 KAG Truncate ending	0-15	00-15 00*
 KAH Code ID setting	00-ffH ASCII code	00-ffH < @ >*
 KAI Insert group number selection	00-44	00-44 00*

UK/plessey

Read: Format

Data Digits (Variable)	Checksum1+2 (Optional)

Checksum Verification: The UK/Plessey has one or two optional checksum digits. The checksum1 and checksum2 will be calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: By setting Enable, checksum will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Checksum Verification	Disable Enable	00 01*

LAC Checksum Transmission	Disable Enable	00* 01
LAD Max. code length	00-64	00-64 00*
LAE Min. code length	00-64	00-64 00*
LAF Truncate leading	0-15	00-15 00*
LAG Truncate ending	0-15	00-15 00*
LAH Code ID setting	00-ffH ASCII code	00-ffH < @ >*
LAI Insert group number selection	00-44	00-44 00*

SS **Exit**

Telepen

Read: IATA (International Air Transport Association).
Checksum Verification: The checksum is presented as the sum module 10 or 11 of the data digits.
Checksum Transmission: By setting Enable, checksum will be transmitted.
Max./Min. code length: Refer to Max./Min. code length of Code-39.
Truncate leading/ending: Refer to Truncate leading/ending of UPCA.
Code ID setting: Refer to Code ID setting of UPCA.
Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Checksum Verification	Disable Enable	00* 01
Checksum Transmission	Disable Enable	00* 01

 Max. code length	00-64	00-64 00*
 Min. code length	00-64	00-64 00*
 Truncate leading	0-15	00-15 00*
 Truncate ending	0-15	00-15 00*
 Code ID setting	00-ffH ASCII code	00-ffH < S >*
 Insert group number selection	00-44	00-44 00*
 Format	Numeric only Full ASCII only	00* 01

Exit

Standard 2 of 5

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Check-sum verification: The checksum is made as the sum module 10 of the numerical values of all data digits.
Check-sum transmission: By setting Enable, checksum will be transmitted.
Max./Min. code length: Refer to Max./Min. code length of Code-39.
Truncate leading/ending: Refer to Truncate leading/ending of UPCA.
Code ID setting: Refer to Code ID setting of UPCA.
Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Check-sum verification	Disable Enable	00* 01

JAC Check-sum transmission	Disable Enable	00* 01
JAD Max. code length	00-64	00-64 00*
JAE Min. code length	00-64	00-64 00*
JAF Truncate leading	0-15	00-15 00*
JAG Truncate ending	0-15	00-15 00*
JAH Code ID setting	00-ffH ASCII code	00-ffH < i >*
JAI Insert group number selection	00-44	00-44 00*

%SS

Exit

China Post

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Max. code length	00-64	00-64 11*
	00-64	00-64

Min. code length		11*
SAF Truncate leading	0-15	00-15 00*
SAG Truncate ending	0-15	00-15 00*
SAH Code ID setting	00-ffH ASCII code	00-ffH < t >*
SAI Insert group number selection	00-44	01-44 00*

%SS **Exit**

Italian Pharmacode (Code 32)

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Max./Min. code length: Refer to Max./Min. code length of Code-39.

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code Id setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Leading "A": If this function is enabled, each prefix of data shall be A.

Program

Option Bar Code	Option	Alphanumeric Entry

Read	Disable Enable	00* 01
Max. code length	00-64	00-64 12*
Min. code length	00-64	00-64 09*
Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*
Code ID setting	00-ffH ASCII code	01-ffH < p >*
	00-44	00-44

Insert group number selection		00*
WAJ Leading “A”	Disable Enable	00* 01

%SS **Exit**

Code-16K

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

S%+PRO **Program**

Option Bar Code	Option	Alphanumeric Entry
RAA Read	Disable Enable	00* 01

 Truncate leading	0-15	00-15 00*
 Truncate ending	0-15	00-15 00*
 Code ID setting	00-ffH ASCII code	00-ffH < >*

 Insert group number selection	00-44	00-ffH 00-44 00*

Exit

PDF-417

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

Program

Option Bar Code	Option	Alphanumeric Entry
QAA Read	Disable Enable	00 01*
QAF Truncate leading	0-15	00-15 00*
QAG Truncate ending	0-15	00-15 00*
QAH Code ID setting	00-ffH ASCII code	00-ffH < P >*
QAI Insert group number selection	00-44	00-44 00*
QAJ Escape sequence transmit	Disable Enable	00* 01

Exit

EAN UCC Composite

For the coupon extended code application. Coupon extended code is a supplementary barcode that is printed to the right of the UPC/EAN in UCC/EAN-128 symbology.

Program

Option Bar Code	Option	Alphanumeric Entry
YAA Read	Disable Enable	00* 01
YAF Truncate leading	0-15	00-15 00*
YAG Truncate ending	0-15	00-15 00*
YAH Code ID setting	00-ffH ASCII code	00-ffH < RC >*
YAI Insert group number selection	00-44	00-44 00*

YAK UCC / EAN128 emulation	Disable Enable	00* 01

%SS

Exit

RSS-14

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

UCC/EAN 128 emulation: Refer to Transmission, Code ID transmission must be set as AIM ID enable. Then]C1 will be identified as prefix of barcode data transmission.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01

Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*
Code ID setting	00-ffH ASCII code	00-ffH < R4 >*
Insert group number selection	00-44	00-44 00*
UCC/EAN128 emulation	Disable Enable	00* 01

Exit

RSS-Limited

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

UCC/EAN 128 emulation: Refer to UCC/EAN 128 emulation of RSS-14.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Truncate leading	0-15	00-15 00*
Truncate ending	0-15	00-15 00*

Code ID setting	00-ffH ASCII code	00-ffH < RL >*
Insert group number selection	00-44	00-44 00*
UCC/EAN128 emulation	Disable Enable	00* 01

Exit

RSS-Expanded

Read: Format

Data Digits (Variable)	Checksum1 (Optional)

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

UCC/EAN 128 emulation: Refer to UCC/EAN 128 emulation of RSS-14.

Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable Enable	00* 01
Truncate leading	0-15	00-15 00*

Truncate ending	0-15	00-15 00*
Code ID setting	00-ffH ASCII code	00-ffH < RX >*
Insert group number selection	00-44	00-44 00*
UCC/EAN128 emulation	Disable Enable	00* 01

Exit

Micro-PDF

Truncate leading/ending: Refer to Truncate leading/ending of UPCA.

Code ID setting: Refer to Code ID setting of UPCA.

Insertion group number selection: Refer to page 51 Insertion group number selection of UPCA.

$%+PRO

Program

Option Bar Code	Option	Alphanumeric Entry
XAA Read	Disable Enable	00 01*
XAF Truncate leading	0-15	00-15 00*
XAG Truncate ending	0-15	00-15 00*
XAH Code ID setting	00-ffH ASCII code	00-ffH < U >*

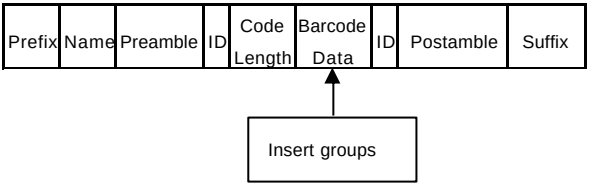
XAI Insert group number selection	00-44	00-44 00*
XAJ Escape sequence transmit	None GLI protocol ECI protocol	00 01 02*

Exit

String setting / Transmission (Prefix / Suffix)

Prefix / Suffix characters setting: Characters defined as prefix or suffix characters will be transmitted immediately with the scanned data for all symbologies. Up to 22 ASCII characters can be defined as Prefix or Suffix.

Format of barcode data transmission:



.

Program

Option Bar Code	Option	Alphanumeric Entry
Prefix characters setting	None 1-22 characters	00* 00-ffH ASCII code
Suffix characters setting	None 1-22 characters	0D* 00-ffH ASCII code

Exit

String setting / Transmission (Preamble/Postamble)

Preamble/ Postamble characters: Preamble or Postamble characters will be appended to the data automatically for all symbologies. However, the transmission will not activate unless **Preamble / Postamble transmission** is enabled.

Preamble transmission: By setting Enable, Preamble will be appended before the data transmitted.

Postamble transmission: By setting Enable, Postamble will be appended after the data is transmitted.

Example:
Add a prefix/suffix or preamble/postamble for all symbologies. In this example, you are sending a $ symbol as a prefix for all symbologies.
Steps:
1) Scan Programming and Prefix characters setting barcode.
2) Use the ASCII code table to find the value of $? 24.
3) Scan 2 and 4 from the barcode on the fold out back page.
4) Scan Finish from the barcode on the fold out page.
5) Scan Exit barcode.

Program

Option Bar Code	Option	Alphanumeric Entry
Preamble characters setting	1-22 characters	"**PREAMBLE**"* 00-ffH ASCII code
Preamble transmission	Disable Enable	00* 01
Postamble characters setting	1-22 characters	"**POSTAMBLE**"* 00-ffH ASCII code
Postamble transmission	Disable Enable	00* 01

Exit

String setting / Transmission (Insert Group Characters)

Insert G1/G2/G3/G4 character setting: The imager supports inserting two groups with each group 22 characters into transmitted data of selected symbologies. The two groups can be inserted into scanned data of the selected symbologies or positioned at leading / ending of data. There are total four groups for utilization.

Insert data group position: To define the position of a group to insert into bar code data. Please notice that the inserting position of a group must not exceed the code length; or the insertion will be positioned at the ending of data.
Notice: Default value "00" indicates the group to be positioned at the leading of data. "64" represents for positioning the group at the ending of data.

Insert data group setting procedure:

i. **Define the characters of groups for insertion.**
ii. **Setup the inserting position of each group in scanned data.**
iii. **Select one or two groups to insert into specific bar codes. Please refer to the setting pages of each bar code.**

Example: Barcode "1 2 3 4 5 6".
Output- Barcode "1 2 A B 3 4 C D 5 6".
Steps:
1) Scan Programming and Insert G1 characters setting barcode.
2) Use the ASCII code table to find the value of A ? 41,B? 42.
3) Scan 4, 1 and 4, 2 from the barcode on the fold out back page.
4) Scan Finish from the barcode on the fold out page.

5) Repeat the same procedure in Insert G2 characters setting.

6) Scan Exit barcode.

1) Insert data group 1-4 position. Please refer to the specific barcode that you want to use.

2) **Insert data group 1-4 position:** The imager offers 4 positions to insert among the symbol. The position default value is "00" to indicate no character insertion. Beside, make sure insertion positions are not greater than the symbols; otherwise the insertion data is not effective.

Program

Option Bar Code	Option	Alphanumeric Entry
Insert G1 characters setting	1-22 characters	“GROUP1”* 00-ffH ASCII code
Insert G2 characters setting	1-22 characters	“GROUP2”* 00-ffH ASCII code
Insert G3 characters setting	1-22 characters	“GROUP3”* 00-ffH ASCII code
Insert G4 characters setting	1-22 characters	“GROUP4”* 00-ffH ASCII code
Insert data group 1 position	00-64 (00: no insertion)	00-64 00*

 Insert data group 2 position	00-64 (00: no insertion)	00-64 00*
 Insert data group 3 position	00-64 (00: no insertion)	00-64 00*
 Insert data group 4 position	00-64 (00: no insertion)	00-64 00*

Exit

String setting / Transmission (Others)

Code ID position: Upon your usage, the transmitting position of Code ID can be selected to place Before Code Data or After Code Data when it is transmitted.

Code ID transmission: If your application is needed to transmit Code ID, you must set this to Proprietary ID or AIM ID.

Code length transmission: A number of data digits can be transmitted before the code data when Enable is selected. The total length of the barcode is the number of barcode data except Truncate Leading/Ending Digits. And the length is a number with two digits.

Code name transmission: This function is to show unknown barcode symbologies that include all readable symbologies of the imager. When Enable is selected, Code Name will be transmitted before code data, you will know what kind of barcode symbology is.

Case conversion: Setup the scanned data characters to be transmitted all in upper case or lower case. For example: If upper case is selected, “12aBcDeF” will be converted and transmitted to host as “12ABCDEF”.

Program

Option Bar Code	Option	Alphanumeric Entry

Code ID position	Before code data After code data	00* 01
Code ID transmission	Disable Proprietary ID AIM ID	00* 01 02
Code length transmission	Disable Enable	00* 01
Code name transmission	Disable Enable	00* 01
Case conversion (For barcode data only)	Disable Upper case Lower case	00* 01 02

Exit

Test Chart (Bar code samples marked with symbol "*" are enabled initially.)

CODABAR-PARA

CODE-11 PARA

**CODE-128 PARA *

**CODE-39 PARA *

CODE-93 PARA

**EAN-13 PARA *

PDF-417 *

STANDRAD-25 PARA

CODE-16K

EAN-8 PARA *

INDUSTRIAL-25 PARA

UPCE PARA *

INTERLEAVED-25 PARA *

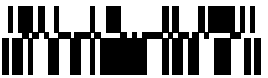
MATRIX 25 PARA

MSI/PLESSEY PARA

UPCA PARA *

UK/PLESSEY PARA

RSS



Micro-PDF *

ASCII Code Table *Note:* ■ *For keyboard wedge only.*

L \ H	0	1	0	1
0	Null		NUL	DLE
1	Up	F1	SOH	DC1
2	Down	F2	STX	DC2
3	Left	F3	ETX	DC3
4	Right	F4	EOT	DC4
5	PgUp	F5	ENQ	NAK
6	PgDn	F6	ACK	SYN
7		F7	BEL	ETB
8	Bs	F8	BS	CAN
9	Tab	F9	HT	EM
A		F10	LF	SUB
B	Home	Esc	VT	ESC
C	End	F11	FF	FS
D	Enter	F12	CR	GS
E	Insert	Ctrl+	SO	RS
F	Delete	Alt+	SI	US

L \ H	2	3	4	5	6	7
0	SP	0	@	P	`	p
1	!	1	A	Q	a	q
2	“	2	B	R	b	r
3	#	3	C	S	c	s
4	$	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	‘	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
A	?	:	J	Z	j	z
B	+	;	K	[	k	?
C	,	<	L	\	l	?
D	-	=	M	]	m	?
E	.	>	N	^	n	?
F	/	?	O	_	o	DEL

Parameter Setting List

Program

Barcode standard parameter setting list

If you wish to display the current barcode reading configuration of your MS350 imager over the host terminal/computer, scan the Barcode standard parameter setting list bar code.

System parameter setting list

If you wish to display the current system configuration of your MS350 imager over the host terminal/computer, scan the System parameter setting list bar code.

String setting list

If you wish to display the string format list, scan the String setting list bar code.

Exit

Query present cradle firmware version

Program

Firmware version list

If you wish to display the cradle and imager firmware versions, scan the "Firmware version list" barcode.

Exit

Reset cradle to factory default settings

<u>WARNING</u>: Default value initialization

If you wish to return the MS350 imager to all the factory default settings, scan the above barcode will perform the feature. However, the cradle will be set to factory default settings at the same time.

Note: This feature is only available when "Auto Update" is enabled (see page 12)

0

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

Finish